



**2015 County of Simcoe 4-Season Waste Composition Studies
CIF Project Number #877**

Final Report
Date June, 2016

Prepared for:
Waste Diversion Ontario
Continuous Improvement Fund Office
Barrie, Ontario



Acknowledgement

This Project has been delivered with the assistance of Waste Diversion Ontario's Continuous Improvement Fund, a fund financed by Ontario municipalities and stewards of Blue Box waste in Ontario. Notwithstanding this support, the views expressed are the views of the author(s), and Waste Diversion Ontario and Stewardship Ontario accept no responsibility for these views.

© 2016 Waste Diversion Ontario and Stewardship Ontario

All rights reserved. No part of this publication may be reproduced, recorded or transmitted in any form or by any means, electronic, mechanical, photographic, sound, magnetic or other, without advance written permission from the owner.

Table of Contents

Executive Summary.....	5
1. Introduction	7
2. Background	7
2.1 Community Profile	7
2.2 Waste Management System.....	8
2.3 Current Waste Management Performance	8
2.4 Program Challenges	8
3. Approach.....	9
3.1 Purpose	9
3.2 Monitoring and Measurement Methodology.....	9
3.2.1 Sampling period	9
3.2.2 Sampling locations	9
3.2.3 Sorting methodology	9
3.2.4 Data analysis	10
3.2.5 Monitoring Challenges, Limitations and Solutions	10
4. Project Results and Analysis	11
4.1 Project Results	11
4.1.1 Single family solid waste generation	11
4.1.2 Composition of Blue Box waste stream	11
4.1.3 Composition of Printed Paper.....	12
4.1.4 Composition of Paper Packaging	12
4.1.5 Composition of Plastics.....	12
4.1.6 Composition of Metal	13
4.1.7 Composition of Glass	13
4.1.8 Composition of Contamination.....	14
4.1.9 Analysis of Results.....	14
4.2 Promotion & Education (P&E)	15
4.3 Lessons Learned.....	15
5. Project Budget.....	16
6. Conclusions	17

LIST OF TABLES

Table 1: Blue Box material generated and contamination 5
Table 2: Waste Management System Overview for Simcoe County, 2015 8
Table 3: Sampling locations – 2015 Simcoe County 10
Table 4: Single family solid waste generation – 2015 Simcoe County 4-Season Waste Composition Study 11
Table 5: Blue Box waste composition – 2015 Simcoe County 4-Season Waste Composition Study 11
Table 6: Composition of Printed Paper – 2015 Simcoe County 4-Season Waste Composition Study 12
Table 7: Composition of Paper Packaging – 2015 Simcoe County 4-Season Waste Composition Study ... 12
Table 8: Composition of Plastics – 2015 Simcoe County 4-Season Waste Composition Study 13
Table 9: Composition of Metals – 2015 Simcoe County 4-Season Waste Composition Study 13
Table 10: Composition of Contaminants – 2015 Simcoe County 4-Season Waste Composition Study 14
Table 11: Project budget CIF #877 – 2015 Simcoe County 4-Season Waste Composition Study 16

LIST OF FIGURES

Figure 1: Map of the County Waste Management Service Area 7
Figure 2: Glass material composition – 2015 Simcoe County 4-Season Waste Composition Study 13

APPENDICIES

- APPENDIX A – County of Simcoe Committee of the Whole Report, February 2016
- APPENDIX B – Waste Composition Studies – Material Categories
- APPENDIX C – Promotion & Education Materials

Executive Summary

This is the final report of a series of four waste composition studies conducted on behalf of the County of Simcoe during 2015. Financial and technical assistance was provided by the Continuous Improvement Fund (CIF) in completing the project.

Curbside waste composition studies are used as a performance indicator to measure household waste generation rates and to monitor the type, quantities of materials, participation, and capture rates of the various types of material. Data is also used to measure the impact of promotion and education initiatives and is recommended in the Solid Waste Management Strategy (Strategy). The 2015 comprehensive four-season waste composition study was completed to coincide with the Strategy 5-year update.

The 2015 composition study dates for the four seasons are listed below:

- Winter: January 5 – 16
- Spring: April 13 – 24
- Summer: July 13 – 24
- Fall: September 28 – October 9

Each composition study included the single family solid waste set-out of garbage, Blue box, and organics waste streams at the same 100 households' representative of the community demographics found in the County's service area. Solid waste was sorted into the [standard waste composition study categories](#).

The single family weekly solid waste generation rate established by the 2015 waste composition studies is 10.11 kg per household. This includes approximately 4.04, 3.83, and 2.21 kg generated weekly of Blue Box, organics, and garbage respectively. The capture rate of Blue Box materials is estimated at 86%, disaggregated as:

Table 1: Blue Box material generated and contamination

Blue Box material generated	Weekly Household (kg / hh)	Composition of Blue Box	Capture (%)
Printed paper	1.38	31.9%	86.4%
Paper packaging	1.25	29.1%	85.6%
Plastics	0.64	14.9%	81.4%
Metals	0.31	7.3%	80.1%
Glass	0.45	10.5%	93.2%
Contamination	0.28	7.4%	
Blue Box	4.32	100%	

Of the glass found in the Blue Box, 60% are Blue Box accepted glass containers and 39.2% are deposit return bottles.

With respect to the County's blue box program specifically, the data indicates that the system is performing well above average, with high capture and low contamination rates. An area for potential cost

savings is the proportion of deposit return bottles in the blue box. This is an area that County staff have been monitoring and will focus future P&E on in order to highlight the additional cost that inclusion of this material in the blue box program results in and that residents should, more appropriately, return their bottles to The Beer Store for a refund.

Jillian Fairchild | Project Coordinator | Simcoe County
o: 705.726.9300 ext. 1040 | e: Jillian.Fairchild@simcoe.ca

1. Introduction

The County planned to conduct a four-season residential curbside waste composition study. The study results were to be included in future planning for Blue Box programming expansion/improvements as well as targeted P&E campaigns. Curbside waste composition studies are used as a performance indicator to measure household waste generation rates and to monitor the type, quantities of materials, participation, and capture rates of the various types of material. Data is also used to measure the impact of promotion and education initiatives and is recommended in the Solid Waste Management Strategy (Strategy). The 2015 comprehensive four-season study was completed to coincide with the Strategy 5-year update.

The planned 2015 waste composition studies build on data collected through previous studies in 2010 & 2012; allowing the County to analyze trends. The results of a comparison between studies will assist staff in assessing performance and making programming decisions.

2. Background

2.1 Community Profile

The County of Simcoe (the County) is located in South-Central Ontario, and is comprised of 16 lower tier member municipalities. Approximately 138,000 households receive recycling collection services from the County with these households dispersed over an area of 4,840 square kilometres. The majority of the population is located in settlement areas, with the remainder scattered through rural areas that make up the bulk of the land area within the County.

The County assumed responsibility for waste from the member municipalities in 1990. Since that time, the County has established a number of programs that have significantly increased waste diversion, including standardization of recycling services in all municipalities including the green bin and the expansion of the blue box program, as well as the reduction and standardization of garbage bag limits across the municipalities.

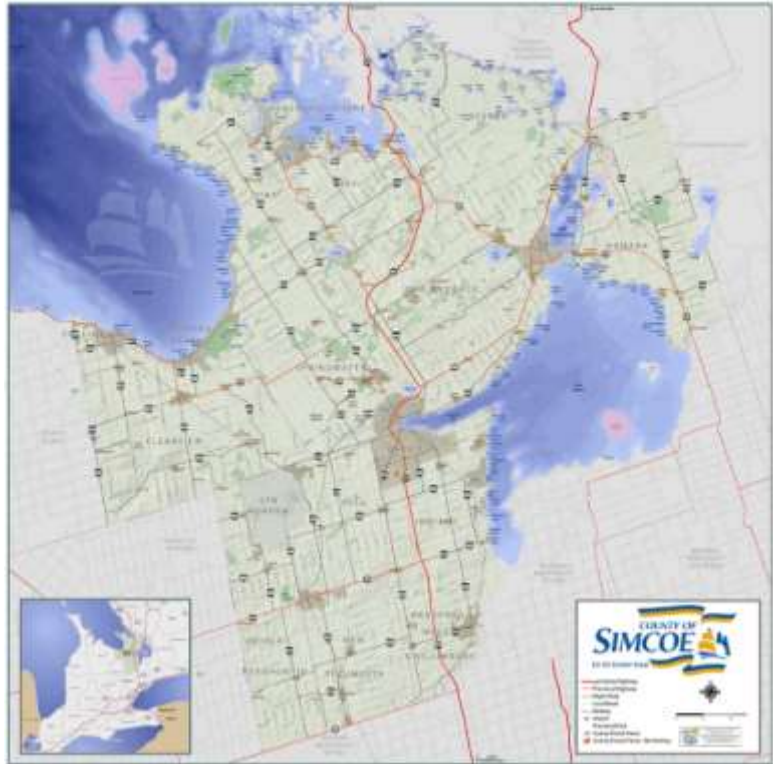


Figure 1: Map of the County Waste Management Service Area

2.2 Waste Management System

The County provides residents with the following waste management services:

- Single-family recycling: Weekly collection of Blue Box materials using a two stream box collection program. Collection services are provided by Progressive Waste Solutions.
- Multi-family recycling: Weekly collection of Blue Box materials using a two stream collection program. Collection services are provided by Progressive Waste Solutions.
- Processing of recyclables is completed by Canada Fibers Ltd. (paper fibres stream) and the City of Guelph (mixed containers stream).
- Organics diversion system for SF and MF (collection and processing) is sent to the AIM processing facility in the City of Hamilton.
- Garbage system for SF and MF (collection and disposal) is also completed by Progressive Waste Solutions, with 50% of the garbage being landfilled at County waste facilities and the remainder being processed at Emerald Energy from Waste.
- The County’s waste management by-law #6256, establishes and maintains a system for collection, processing, marketing, transfer and or disposal of garbage, organics, recyclables and other special waste material and for the operation and maintenance of County waste management facilities.

2.3 Current Waste Management Performance

The performance information can be summarized in a table format shown below.

Table 2: Waste Management System Overview for Simcoe County, 2015

	Units	Blue Box Recycling		Total Waste Diversion		Disposal		Generation (Total)	
		rate	% of total	rate	% of total	rate	% of total	rate	%
GAP Reported	tonnes	25,646	17.6%	88,051	60.5%	57,554	39.5%	145,605	100%
	Kg/hhld	186		640		418		1,058	

2.4 Program Challenges

The County wanted to conduct a round of four-season residential curbside waste composition studies for the purpose of future Blue Box and waste management system planning. Assessment of the Blue Box results would be used to determine the feasibility of expansion or improvements to the existing program in addition to determining which materials could benefit from targeted P&E campaigns. A report on the full-year study results were provided to County Council in early 2016 (Appendix A) and targeted P&E messaging was used in the 2016 Waste Management Calendar and in website messaging.

3. Approach

3.1 Purpose

The 2015 County of Simcoe Residential Curbside Waste Study included collecting, sorting and classifying single-family residential wastes. The study took place in selected areas throughout Simcoe County.

The main objectives of the single-family waste study were to:

- collect accurate single-family waste generation and composition data across the County;
- estimate County waste generation rates (kg/household/week) for single-family households by material category; and
- estimate typical recovery rates for recyclable Blue Box waste.

2cg was contracted to complete the waste studies.

3.2 Monitoring and Measurement Methodology

3.2.1 Sampling period

The sampling period consisted of four two-week long studies with one study taking place during each of the winter, spring, summer and fall seasons in the specified sampling locations. The 2015 composition study dates for the four seasons are listed below.

- Winter: January 5 – 16
- Spring: April 13 – 24
- Summer: July 13 – 24
- Fall: September 28 – October 9

3.2.2 Sampling locations

100 households (10 houses in a row in 10 sample areas) were specifically selected from various municipalities to be representative of the County's demographic, including seasonal, rural, farm, and small urban nodes, and the County's single-family waste generation/recovery behavior. The sample households are located within the Town of Collingwood, Tiny Township, Town of Midland, Ramara Township, Essa Township, Town of Innisfil, Town of Bradford West Gwillimbury, Adjala-Tosorontio Township and Wasaga Beach.

3.2.3 Sorting methodology

The study contractor was responsible for collecting all garbage, green bin organics, containers recycling and paper fibres recycling set out at the curb by each sample household daily during each of the two week sampling periods.

Material was collected from the specified areas listed above and taken to a County Waste Management Facility (Site 11 – Oro Landfill) located at 610 Old Barrie Road West, Oro-Medonte for sorting. Material was then sorted into the waste composition sorting categories – listed in Appendix B. Materials were

weighed to 0.01 kg (the nearest gram). A collection log, sort log, and raw data results were provided by the contractor to County staff following each study for analysis.

Table 3: Sampling locations – 2015 Simcoe County

Municipality	Street
Collingwood	Lockhart Road
Tiny	Tiny Beaches Road North
Midland	Third Street
Ramara	Southview Drive
Essa	Julie Street
Essa	County Road 56
Innisfil	Killarney Beach Road
Bradford	Brittania Avenue
Adjala-Tosorontio	Simon Drive
Wasaga Beach	Brillinger Drive

3.2.4 Data analysis

County staff analyzed the raw data provided by the study contractor to identify trends in waste generation, composition and diversion amongst the garbage, recycling, and organics waste streams. Participation (set-out) in the recycling and organics program over the study period was also assessed by staff.

3.2.5 Monitoring Challenges, Limitations and Solutions

In total, there were three missed collection events that needed to be rescheduled over the eight-week study period. Details for each are provided below:

Winter: One set of homes (10) were missed due to collection contractor error. Locations were re-sampled on the first scheduled collection following the two week study cycle.

Summer: Two sets of homes (20) were missed due to collection contractor error. Locations were re-sampled on the first scheduled collection following the two week study cycle.

Fall: Two sets of homes (20) were rescheduled as a result of a request from 2cg. Locations were re-sampled on the first scheduled collection following the two week study cycle.

4. Project Results and Analysis

4.1 Project Results

The key results from analysis of the waste composition studies are presented in the following four sections. The raw data provided by the waste composition study contractor has been consolidated for each of the studies to be representative of the County’s single family waste generation.

4.1.1 Single family solid waste generation

The single family weekly solid waste generation rate established by the 2015 waste composition studies is 10.11 kg per household – see table 2.

Table 4: Single family solid waste generation – 2015 Simcoe County 4-Season Waste Composition Study

Single family solid waste generation	Household (kg / hh)	Composition	Estimated Annual Tonnes	Capture (%)
Blue Box	4.04	40%	28,978	86%
Organics	3.83	38%	27,519	39%
other materials (garbage)	2.21	22%	15,884	
	10.11		72,381	

The estimated total of all materials collected at the curb is 72,381 annual tonnes. The percent composition of the materials collected at the curb do not include materials only collected at depot locations, or special pickup days (large items, leaf & yard, etc.).

4.1.2 Composition of Blue Box waste stream

The single family weekly solid waste collected through the Blue Box program established by the 2015 waste composition studies is 4.32 kg per household – see table 3. Note, this value does not include contaminant materials collected.

Table 5: Blue Box waste composition – 2015 Simcoe County 4-Season Waste Composition Study

Blue Box material generated	Weekly Household (kg / hh)	Composition	Estimated Annual Tonnes	Capture (%)
Printed paper	1.38	31.9%	9,868	86.4%
Paper packaging	1.25	29.1%	8,998	85.6%
Plastics	0.64	14.9%	4,621	81.4%
Metals	0.31	7.3%	2,247	80.1%
Glass	0.45	10.5%	3,245	93.2%
Contamination	0.28	7.4%	1,994	
Blue Box	4.32	100%	28,978	

* does not include contaminant tonnes

4.1.3 Composition of Printed Paper

Printed paper constitutes the largest proportion of Blue Box material generated by single family households in the County. The largest proportion of this material being newsprint. Capture rates for the majority of materials are excellent (>90%), with the exception of Other Printed Paper (approximately 66%).

Table 6: Composition of Printed Paper – 2015 Simcoe County 4-Season Waste Composition Study

Blue Box - Printed Paper generated	Household (kg / hh)	Composition	Estimated Annual Tonnes	Capture (%)
Newsprint - Daily and weekly	0.30	6.9%	2,144	92.7%
Other Newsprint - Other	0.50	11.6%	3,608	95.2%
Magazines and Catalogues	0.17	3.8%	1,191	95.6%
Directories / Telephone books	0.01	0.2%	51	96.5%
Other Printed Paper (Obligated)	0.17	4.0%	1,231	62.1%
Other Printed Paper (Non-Obligated)	0.23	5.3%	1,643	68.9%
Blue Box - Printed Paper	1.38	31.9%	9,868	86.4%

4.1.4 Composition of Paper Packaging

Paper packaging constitutes the second largest proportion of Blue Box material generated by single family households in the County. The largest proportion of this material being old corrugated cardboard (OCC) and box board (OBB). The capture of OCC materials in the Blue Box waste is excellent.

Table 7: Composition of Paper Packaging – 2015 Simcoe County 4-Season Waste Composition Study

Blue Box - Paper Packaging generated	Household (kg / hh)	Composition	Estimated Annual Tonnes	Capture (%)
Containers (gable top, aseptics, cups)	0.16	3.7%	1,146	69.8%
OCC	0.53	12.4%	3,828	95.1%
OBB	0.56	13.0%	4,025	81.3%
Blue Box - Paper Packaging	1.25	29.1%	8,998	85.6%

4.1.5 Composition of Plastics

Plastic packaging constitutes the third largest proportion of Blue Box material generated by single family households in the County. The largest proportion of this material being PET container. The capture of PET and HDPE materials in the Blue Box waste is very good.

Table 8: Composition of Plastics – 2015 Simcoe County 4-Season Waste Composition Study

Blue Box - Plastics generated	Household (kg / hh)	Composition	Estimated Annual Tonnes	Capture (%)
PET	0.35	8.0%	2,481	88.7%
HDPE	0.12	2.8%	861	85.5%
PP	0.07	1.6%	424	78.3%
PS non-expanded	0.05	1.2%	360	55.8%
MRPs - other	0.06	1.3%	409	54.2%
Blue Box - Plastics	0.64	14.9%	4,535	81.4%

4.1.6 Composition of Metal

Metal containers and packaging constitutes the smallest proportion of Blue Box material generated by single family households in the County. The majority of which is aluminum and steel containers. The capture of both these materials is very good to excellent.

Table 9: Composition of Metals – 2015 Simcoe County 4-Season Waste Composition Study

Blue Box - Metals generated	Household (kg / hh)	Composition	Estimated Annual Tonnes	Capture (%)
Aluminum Food & Beverage Containers Total	0.12	2.7%	838	90.9%
Other Aluminum Packaging Total	0.04	0.9%	289	34.6%
Steel Food & Beverage Containers Total	0.14	3.2%	976	89.0%
Other Steel Packaging Total (aerosols)	0.02	0.5%	143	48.8%
Blue Box - Metals	0.31	7.3%	2,247	95.2%

4.1.7 Composition of Glass

Glass bottles constitute the second smallest proportion of Blue Box material generated by single family households in the County. The majority of which are clear glass bottles which constitutes 6.1% of all Blue Box material. Generation of clear glass bottles is approximately 0.27 kilograms per household or 1,782 tonnes annually for the whole County.

There is also a significant amount of deposit return glass (<40%) collected in the Blue Box waste stream; approximately 1,157 tonnes.

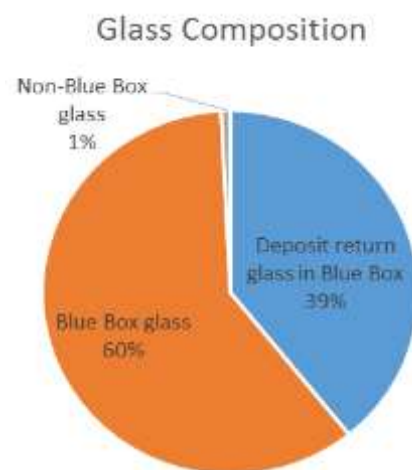


Figure 2: Glass material composition – 2015 Simcoe County 4-Season Waste Composition

4.1.8 Composition of Contamination

Contamination represents approximately 7.4% of the Blue Box material collected from single family homes in the County. The organics, plastics, and other waste (garbage) not accepted in the Blue Box program are the three largest contaminants.

It is noted that the highest contamination rates occurred during the summer months when the seasonal population in the County is at its highest. County staff believe that the disparity in municipal programs between home and the cottage, has an impact on contamination rates. Further, capture of all Blue Box materials was observed to be greatest during the summer months. This may reflect the ‘hopeful’ recycling behaviors of seasonal residents, attempting to recycle all materials that may be accepted through the County’s program.

Table 10: Composition of Contaminants – 2015 Simcoe County 4-Season Waste Composition Study

Contamination (% of BB Composition)	Winter	Spring	Summer	Fall	Average
Paper packaging – not accepted	0.5%	0.3%	0.1%	0.3%	0.3%
Plastics – not accepted	1.2%	2.3%	2.7%	2.2%	2.1%
Metals – not accepted	0.1%	0.5%	0.3%	0.5%	0.4%
Glass – not accepted	0.4%	0.7%	0.9%	1.1%	0.8%
MHSW	0.0%	0.2%	0.1%	0.1%	0.1%
Organics	2.7%	1.0%	3.1%	1.7%	2.1%
Other materials	1.3%	2.2%	2.0%	1.2%	1.7%
TOTAL CONTAMINATION	6.2%	7.2%	9.2%	7.0%	7.4%

4.1.9 Analysis of Results

The County evaluated the results to determine which materials had the lowest capture rates, had significant cost implications, and would benefit most from targeted promotion and education. Generally, it was determined that the low capture rate materials observed in the 2012 results such as aseptic containers and aluminum foil and trays were still achieving low capture rates in 2015. In the 2015 results, the lowest capture rates were observed for items such as aluminum foil and foil trays, steel aerosol cans, and aseptic containers, which actually decreased by 10% from 2012.

Improvements in capture rates from the 2012 study were also observed, the most notable increases were for #1 Polyethylene Terephthalate (PET), composite cans (spiral wound containers), and PET thermoform packaging (including items such as bakery trays, vegetable trays). The County has an overall capture rate of 86% for the Blue Box program which amongst the highest in the province.

The County also utilized the 2012 and 2015 study data to complete an assessment of the cost implications from the high amount of deposit return alcohol containers that end up in the in the Blue Box program. Nearly half of the glass in the Blue Box could be going to The Beer Store in the *Bag it Back* program through the Ontario Deposit Return Program. Based on the County’s cost analysis, using 2015 study data, the cost for transfer, haulage, processing and market costs only (excluding collection costs) to manage curbside collected LCBO deposit return glass is more than \$210,000 annually.

The County's contamination/residue rates are generally fairly low (6.4%). Targeted P&E to County residents and education and training for the contracted service provided will help to reduce this number over time.

4.2 Promotion & Education (P&E)

In order to improve program capture rates, reduce contamination/residue and maximize the cost efficiencies of the program the County utilizes waste composition study results to determine how best to employ P&E messaging to its residents.

The County included *Did You Know* bulletins in the 2016 calendar for gable top and aseptic containers (cartons), aluminum trays and foil, and deposit return alcohol containers. In 2015, some of the available in-kind advertising was also used to promote carton type packaging recycling in the Blue Box program. The County's Solid Waste Management website also featured a *Did You Know* promos/sliders regularly between the fall of 2015 and spring of 2016 for cartons type packaging.

Most recently the staff initiated *Many Happy Returns* on the Solid Waste Management website to promote deposit return glass containers – this campaign will run throughout the summer and again in December for 2016.

As result of the seasonal variation with Blue Box contamination, primarily in the summer months, County staff have developed a seasonal resident waste management guideline (sorting guide) that is mailed to all seasonal residents annually. The sorting guide highlights the acceptable materials in the program, the garbage box markers program, proper disposal of pressurized cylinders - the 2016 edition will also address deposit return containers.

See Appendix C for examples of the P&E materials referenced.

4.3 Lessons Learned

For future waste composition studies the County may consider expanding sorting criteria for certain materials in order to better determine the amount of Blue Box eligible material being placed in the garbage stream. For instance, the results don't currently indicate what portion of items such as aluminum foil and trays found in the garbage are too contaminated with food waste to actually be considered Blue Box eligible material. This makes it is difficult for staff to determine how much of the material currently being identified in the study as uncaptured was correctly placed in the garbage stream by residents.

5. Project Budget

Table 11: Project budget CIF #877 – 2015 Simcoe County 4-Season Waste Composition Study

Vendor	Date	Item	Subtotal
2cg	19-Oct-15	waste auditing part 4	\$11,250.00
2cg	31-Jul-15	waste auditing part 3	\$11,250.00
2cg	30-Apr-15	waste auditing part 2	\$11,250.00
2cg	09-Feb-15	waste auditing part 1	\$11,250.00
2cg	19-Oct-15	waste auditing part 4 - deposit return component	\$500.00
2cg	31-Jul-15	waste auditing part 3- deposit return component	\$500.00
2cg	30-Apr-15	waste auditing part 2- deposit return component	\$500.00
2cg	09-Feb-15	waste auditing part 1- deposit return component	\$1,000.00
Total subtotal costs			\$47,500.00
CIF Funded portion 1 - waste audits @ 60% up to \$26,865			\$26,865.00
CIF Funded portion 2 - additional category (LCBO) @ 100%			\$2,544.00
CIF Funding total			\$29,409.00

6. Conclusions

The County completes regular curbside waste composition studies, approximately every 3 years, because of the valuable information that can be obtained from the results. For example, data from previous waste composition studies completed in 2010 helped the County determine the feasibility of adding the full suite of mixed plastics No. 1 through 7, including the clamshell packaging to the Blue Box program in 2012. The subsequent studies completed in 2012/2013 helped evaluate the success of the provision of larger blue boxes and the associated P&E campaign for the expanded plastics. Composition study data is also reported to the public to make them aware of successes and areas for improvement. As well, County staff regularly utilize waste composition study data to determine areas that could benefit from targeted P&E.

The results obtained through the 2015 curbside waste composition studies provided valuable information and allowed staff to assess both the success of its programs and potential areas for improvement. In the past, the County has generally based its effort on materials which had the lowest capture rate such as cartons and gable top containers; however, staff are also completing more detailed cost analysis studies. The 2015 curbside analysis revealed several key areas that would benefit from targeted P&E:

- Significant amounts of deposit return glass in the Blue Box program
- Higher contamination in the summer that coincides with the increased seasonal population
- Low capture of cartons (specifically aseptic containers), aluminum foil and trays, and aerosol cans

As discussed, the deposit return glass makes up nearly half of all glass captured in the Blue Box program, based on the 2015 results, and costs the County over \$200,000 annually to manage. A similar analysis was completed following the 2012 study. While the deposit return glass overall makes up a very small portion of the total Blue Box material collected curbside the cost implications are significant and so the County is committed to increasing P&E for this material to encourage residents to use the Steward's "Bag it Back" program.

Seasonal variations continue to be a challenge for the County which experiences a significant influx in population May through September. When comparing the results of the individual seasonal studies it is apparent that while capture rates increase during the summer the contamination rates also increase. The majority of the contamination materials include plastic film and laminate packaging, expanded polystyrene, deposit return glass, and non-Blue Box materials such as food waste organics and diapers/sanitary products; these are likely materials that are acceptable in the curbside programs where the seasonal residents primarily reside. In 2012, the County began issuing a sorting guide to seasonal residents - each year an updated card is sent through the mail to each seasonal property. The 2016 sorting guide will include a section to promote returning deposit return containers and not placing them in the Blue Box.

Finally, the County continues to have low capture rate on materials such as cartons and aluminum foil and trays. These materials are regularly promoted on the website, in the annual waste management calendar and at events. County staff will continue to promote the proper sorting of these materials and monitor for improvements. Future studies may include a more detailed analysis of the aluminum foil and trays to determine how much of the foil found in the garbage should have been in the Blue Box in order determine a more accurate capture rate for this material.